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# Regionalization of Wastewater Treatment Facilities in Kentucky:

*Progress, Problems, & Recommendations*

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## ABSTRACT

Within Kentucky's Natural Resources and Environmental Protection Cabinet, the Division of Water (DOW) is charged with restoring and protecting the quality of the waters of the Commonwealth. Accordingly, it is the DOW's responsibility to regulate the discharge of treated wastewater and ensure that such discharges do not cause violations of established instream water quality standards.

In the process of pursuing this regulatory activity, DOW staff have discovered through experience that smaller wastewater facilities, most commonly those referred to as "package plants," tend to violate their permit limits and generally exhibit the detrimental effects of poor operation and management practices. Package plants are numerous and commonly used throughout the state to serve subdivisions, schools, facilities at highway interchanges, commercial establishments, mobile home parks, nursing homes, and other customers located outside defined planning areas; and the number of these facilities is increasing. Given the water quality degradation caused by many of these package plants, the DOW is endorsing a *regionalization* policy for wastewater treatment, as laid out in the federal Clean Water Act.

In the context of this paper, *regionalization* is defined as (1) the elimination of a treatment facility with diversion of its raw wastewater flow to a Publicly Owned Treatment Works (POTW); (2) the combination of two or more existing facilities into a new or selected regional treatment facility; (3) the prevention of new discharges, where possible, by requiring connection to an existing facility; or (4) the creation of sanitation districts and/or regional wastewater authorities.

The purpose of this report is to demonstrate the problems associated with many small-scale wastewater treatment systems, particularly package plants (a separate appendix briefly discusses septic systems as well); to describe ongoing efforts to reduce the number of package plants through Kentucky's regionalization efforts; and to recommend legislative and regulatory measures to facilitate regionalization in Kentucky as a means to improve water quality throughout the Commonwealth.

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## **Introduction**

### **Legislative and Regulatory Background**

Through legislation passed in 1972 and amended in 1977, the United States Congress created the Clean Water Act (CWA).<sup>1</sup> The overarching goal of this legislation is to "restore and maintain the chemical, physical and biological integrity of the nation's waters."<sup>2</sup>

Section 303 of the CWA requires states to inventory all waters within their jurisdictions to determine the best use or uses of every body of water (e.g., public water supply, propagation of fish, aquatic life, recreation); to set water quality standards that maintain each designated use;<sup>3</sup> and to devise a plan for implementation and enforcement.

The Commonwealth of Kentucky, in legislation essentially mirroring the federal CWA, is charged with safeguarding the waters of the Commonwealth from pollution and abating any existing pollution.<sup>4</sup> To this end, Kentucky's Natural Resources and Environmental Protection Cabinet (NREPC), Division of Water (DOW), has designated the best use or uses for all surface waters of the Commonwealth and has established water quality criteria for the protection of these uses.<sup>5</sup> The DOW's duties encompass, among other important responsibilities, regulating the construction and operation of facilities that discharge pollutants into the waters of the Commonwealth.<sup>6</sup>

The CWA "recommends such treatment works as will provide the most effective and economical means of collection, storage, treatment, and elimination of pollutants and recommends means to encourage both municipal and industrial use of such works."<sup>7</sup> The Act defines treatment works as "any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature..."<sup>8</sup>

The water quality standards mandated by EPA and set by the states, in combination with a number of technology-based effluent guidelines, provide the basis for setting effluent limits in permits for public and private facilities discharging into waters of the United States.<sup>9</sup> A state may assume responsibility for administering this permit program, known as the National Pollutant Discharge Elimination System (NPDES), if its control requirements meet rigorous federal standards.<sup>10</sup> Upon federal approval, the Kentucky DOW assumed responsibility for the NPDES permitting program and incorporated it into Kentucky regulations on September 30, 1983, as the Kentucky Pollutant Discharge Elimination System (KPDES).<sup>11</sup>

### **Wastewater Systems in Kentucky**

For the purposes of permit issuance and record-keeping in the KPDES program, Kentucky's point-source wastewater systems are designated in one of the following five categories based on size and ownership: major or minor municipal (collectively, Publicly Owned Treatment Works, or POTWs), industrial, school, subdivision, and small sewage. Most facilities in the latter three categories can collectively be called package plants.

**Publicly Owned Treatment Works (POTWs)** are defined in KRS 224.01-010 (19) as "any device or system used in the treatment (including recycling and recovery) of municipal sewage or industrial wastes

of a liquid nature, which is owned by the Commonwealth or a political subdivision of the Commonwealth." POTWs run the gamut in size, so they are often segregated for analysis into "major" and "minor" municipals. "Major" municipals are those facilities treating 1.0 million gallons or more per day (mgd) of wastewater, while "minor" municipals are those treating less than 1.0 mgd.

**Package plants** are so named because the wastewater treatment facility is typically purchased and installed as a complete prefabricated unit. These facilities are usually small in size and capacity. They are particularly popular in remote and/or unincorporated areas, where they may serve schools, subdivisions, mobile home parks, commercial establishments, institutions, facilities at highway interchanges, recreational facilities, private residences, etc., although a few minor municipal wastewater facilities could also be classified as "package plants" in the strictest sense. An optimally maintained package plant has a life expectancy of up to 20 years.

Because POTWs and package plants are characterized as "point sources" of pollution, they must have a valid KPDES permit in order to discharge lawfully into the waters of the Commonwealth. In categorizing package plants, the DOW recognizes facilities serving subdivisions and schools as distinct from small sewage plants. The latter are defined as facilities discharging less than 10,000 gallons per day (gpd).<sup>12</sup> Representative examples include various commercial establishments, highway interchanges and rest areas, private homes, institutions, mobile home parks, marinas, apartment complexes, recreation facilities, and motels.

The purpose of this report is to demonstrate the problems associated with many small-scale wastewater treatment systems, particularly package plants;<sup>13</sup> to describe ongoing efforts to reduce the number of package plants through Kentucky's wastewater regionalization efforts; and to recommend legislative and regulatory measures to facilitate regionalization in Kentucky as a means to improve water quality throughout the Commonwealth.

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## CHAPTER NOTES

<sup>1</sup> The Federal Water Pollution Control Act (FWPCA), 33 U.S.C. §§ 1251-1376, P.L. No. 92-500, 86 Stat. 816 (1972).

<sup>2</sup> CWA, § 101.

<sup>3</sup> 40 C.F.R. § 131.10(h). The Act forbids states to downgrade the designated use of a water body except under very limited circumstances.

<sup>4</sup> KRS 224.70-100 and 224.10-100(g). KRS 224 adopts the federal policy of nondegradation of waters of the Commonwealth into Kentucky statute.

<sup>5</sup> The Natural Resources and Environmental Protection Cabinet (NREPC) is established and empowered by KRS Chapter 224 to regulate water, waste, and air. Statutory authority for DOW activities and responsibilities stems from Kentucky Revised Statutes (KRS) Chapters 74, 76, 104, 146, 151, 174, 220, 223, and 224; and the following chapters of the Kentucky Administrative Regulations: 401 KAR Chapters 4, 5, 6, and 8, and 400 KAR Chapter 1. KRS Chapter 151 contains a comprehensive statement of Kentucky's overall water resources policy, endorsing the beneficial use of water resources, prevention of waste and nonbeneficial use, and conservation of water. 401 KAR Chapter 5 addresses water quality, including stream use classification, nondegradation of waters, surface water standards, construction and operating permits for sewage treatment systems, treatment requirements, wastewater facility operator certification, reporting requirements for spills and sewage system bypasses, and the KPDES permitting program.

<sup>6</sup> The DOW does not regulate on-site treatment such as a septic or wetland system, which treats wastewater by percolating it through the soil and is considered a "nonpoint" source of pollution. These systems are regulated by the Cabinet for Human Resources, Department for Health Services, in accordance with 902 KAR 10:081 through 10:085.

<sup>7</sup> CWA, § 102(c)(2)(b).

<sup>8</sup> CWA, § 211(a)(2).

<sup>9</sup> J. Gordon Arbuckle, Timothy A Vanderver, Jr., and Russell V. Randle, "Water Pollution Control," in Environmental Law Handbook, Rockville, Maryland: Government Institutes, Inc., 1991, 70.

<sup>10</sup> 33 U.S.C. § 1342 (b).

<sup>11</sup> Statutory authority for the KPDES program is found in KRS 224.16-050. For regulatory provisions, refer to 401 KAR 5:050 through 5:085.

<sup>12</sup> 401 KAR 5:005 Section 1 (15).

<sup>13</sup> Septic systems are discussed separately in Appendix A of this report.



## **Analysis of Wastewater Problems in Kentucky**

The experience of water pollution control administrators nationwide has indicated a relationship between the size and ownership of facilities and their effectiveness in treating wastewater. The experience of the Kentucky Division of Water (DOW) has been consistent with that on the national level. Data compiled from the self-monitoring reports required of all point-source dischargers, as well as field inspections of permitted facilities, have largely confirmed anecdotal evidence that private package plants on the whole do not perform as well as their municipally owned counterparts. Given the large number of package plants in comparison to municipal facilities in Kentucky, the generally poor reputation of package plants merits a great deal of concern for present and future water quality in the Commonwealth.

### **Health and Environmental Consequences of Poor Wastewater Treatment**

The human health and environmental implications of poor package plant operation can be severe. Domestic wastewater effluent pollutes its receiving water, particularly small streams, with bacteria and nutrients. Disease-causing bacteria, including dysentery, hepatitis, meningitis, and diarrhea, can infect people who come in contact with contaminated water with sometimes fatal results.<sup>1</sup> When high levels of fecal coliform bacteria (an indicator of the presence of human or animal waste) are detected in DOW's ambient water quality monitoring, the state may issue a public swimming advisory cautioning citizens to limit their contact with contaminated waters. Such an advisory has curtailed recreational activity on much of the North Fork of the Kentucky River for the last four summers and at several other locations throughout the state.

Nutrient-laden effluent discharged into streams can also degrade the environment for aquatic life. The nutrients stimulate algae growth. As the algae die, the decay process removes dissolved oxygen from the water, depriving resident organisms of the oxygen they need. Significant amounts of raw sewage introduced into the receiving water can cause fish kills. These incidents commonly result from improper wastewater plant operation, overflows during peak periods or storm events, or malfunctioning equipment. Chronic loading of improperly treated sewage effluent can place stresses on the environment and ultimately degrade habitat quality, jeopardize the balance of the aquatic community, and encourage the encroachment of pollution-tolerant, undesirable species.

The Environmental Quality Commission (EQC), in its 1992 *State of Kentucky's Environment* report, noted that discharges of improperly treated sewage from poorly maintained and operated wastewater treatment plants caused 29 percent of the pollution problems in Kentucky's streams and rivers in 1991.<sup>2</sup> Table 2-1 shows the extent of water quality degradation in Kentucky's streams attributable to wastewater plants, by river basin.

**Table 2-1**  
**Kentucky Streams Impaired by Municipal Wastewater Treatment Discharges,**  
**by River Basin**

River Basin	Wastewater Treatment Plants		Miles Not Supporting Uses		Percent of Nonsupport Problem
	Municipal	Package	1989*	1991	
Big Sandy	15	252	147	195	78%
Little Sandy	3	70	97	51	81%
Tygarts Creek	1	13	0	0	-
Licking	18	144	118	113	53%
Kentucky	40	309	204	146	30%
Upper Cumberland	22	190	75	52	56%
Salt	24	263	322	248	59%
Green	38	165	100	667	36%
Tradewater	4	24	0	0	-
Lower Cumberland	15	41	60	25	100% *
Tennessee	9	62	0	0	-
Mississippi	12	19	32	24	100%
Ohio & Tributaries	57	384	60	58	71%
<b>TOTALS</b>	<b>258***</b>	<b>1,936</b>	<b>1,215</b>	<b>979</b>	

\* Includes streams partially supporting and not supporting uses due to municipal wastewater discharges.

\*\* Attributed to municipal/agriculture

\*\*\* Total includes 22 small package plants owned and operated by municipalities.

Source: Kentucky Division of Water, 305(b) Report, 1990-1992, in the Environmental Quality Commission's "State of Kentucky's Environment" Report, 1992, p. 39

In addition to degrading surface waters in the Commonwealth, improperly treated or untreated sewage can also migrate into groundwater resources through the limestone karst underlying almost half of Kentucky. This terrain is characterized by sinkholes, sinking streams, and interconnected underground caves. Since most of the groundwater in karst regions is surface water that enters through sinkholes and sinking streams, it is especially vulnerable to contamination by surface pollutants. According to the American Cave Conservation Association, as much as 60 percent of Kentucky's rural karst groundwater drinking water supplies may be contaminated by sewage.<sup>3</sup> Such contamination jeopardizes the health of the approximately 20 percent of those Kentuckians who obtain their drinking water from groundwater supplies, while also degrading the unique cave ecosystems that have made Kentucky internationally famous. These impacts also threaten the economic health of Kentucky, not only because its cave systems and water resources attract millions of tourists annually but also because quality development in Kentucky depends upon the availability of clean water supplies.

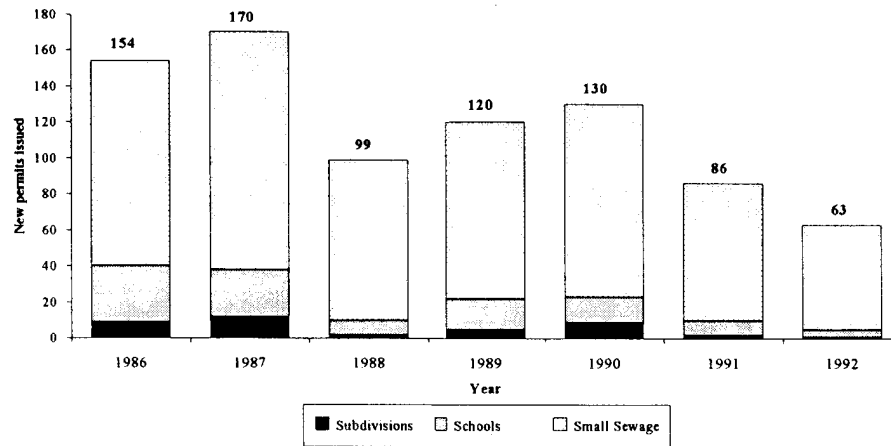
The previous chapter introduced the different classes of wastewater systems. This chapter will discuss common problems experienced by smaller facilities and will compare the performance of package plants with that of larger publicly owned facilities.

## Package Plants: Number and Distribution

A package treatment plant may provide a long-term answer to the wastewater treatment needs of existing small pockets of development in a particular geographic area where connection to a larger Publicly Owned Treatment Works (POTW) is infeasible and where the topography and/or soil type are unsuitable for septic systems. Many schools, subdivisions, commercial establishments, rest areas and highway interchanges, institutions, mobile home parks, marinas, apartment complexes, motels, recreational facilities,

and even single private residences rely on package plants for wastewater service. Many such plants are installed every year in Kentucky, as Figure 2-1 indicates.

**Figure 2-1**  
**New KPDES Permits Issued for Package Plants**  
**1986-1992**



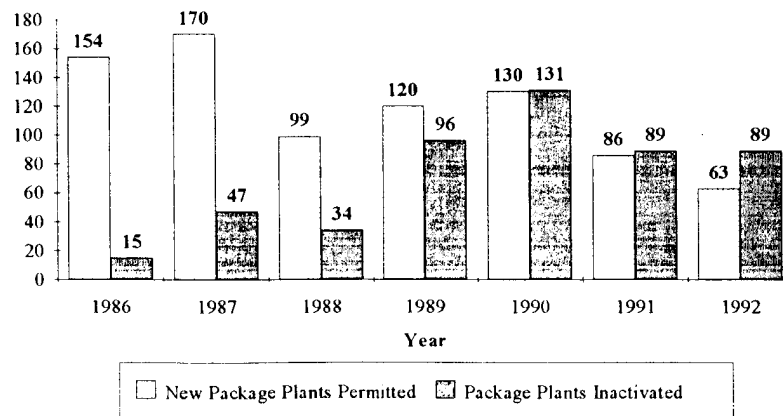
Source: Division of Water, 1993

(Numbers on chart are totals for column)

Figure 2-1 shows that, since the initiation of a concerted regionalization effort beginning in FFY 1988 with the Section 205(j)/604(b) program,<sup>4</sup> the number of new permits issued each year for package plants has begun to decline.

In addition, with the efforts of the DOW central and field staffs to curb the overall number of package plants, many such facilities are inactivated each year, i.e., removed from operation. The DOW verifies each inactivation by performing an inspection and issuing a No-Discharge Certification, which identifies the facility now handling the wastewater once treated by the inactivated plant. Figure 2-2 compares the total number of inactivated package plants in each year from 1986 to 1992 with the number of new package plant permits issued.

**Figure 2-2**  
**New Package Plant Permits v. Inactivations**  
**1986-1992**



Source: Division of Water, 1993

Figure 2-2 shows that, beginning in 1991, the number of package plants inactivated has begun to outstrip the number newly permitted by a small margin. Therefore, it appears that the efforts of the DOW to curb the use of this type of wastewater treatment facility in Kentucky are beginning to produce results. Table 2-2 presents that data by Area Development District (ADD).<sup>5</sup>

**Table 2-2**  
**Net Total of New Package Plants Per ADD**  
**(New Facilities Minus Inactivated Facilities)**  
**1986-1992**

ADD	1986	1987	1988	1989	1990	1991	1992	TOTAL
Barren River	0	0	0	14	(1)	1	(5)	9
Big Sandy	20	31	14	4	(11)	(2)	4	60
Bluegrass	22	4	3	1	1	(2)	0	29
Buffalo Trace	3	2	2	2	1	(1)	2	11
Cumberland Valley	9	16	1	12	(3)	(5)	(6)	24
Fivco	16	8	2	2	3	(2)	(6)	23
Gateway	1	2	0	(3)	(4)	0	(1)	(5)
Green River	8	4	0	(3)	(2)	(1)	(1)	5
Kentuckiana	0	1	23	(14)	21	13	(10)	34
Kentucky River	21	12	5	4	11	0	(2)	51
Lake Cumberland	4	10	(1)	1	0	(5)	(1)	8
Lincoln Trail	5	1	3	1	(5)	(1)	0	4
Northern Kentucky	20	14	17	7	(1)	6	5	68
Pennyrile	4	2	(4)	1	0	(1)	0	2
Purchase	7	16	2	1	(8)	(3)	(5)	10
<b>TOTAL</b>	<b>140</b>	<b>123</b>	<b>67</b>	<b>30</b>	<b>2</b>	<b>(3)</b>	<b>(26)</b>	<b>333</b>

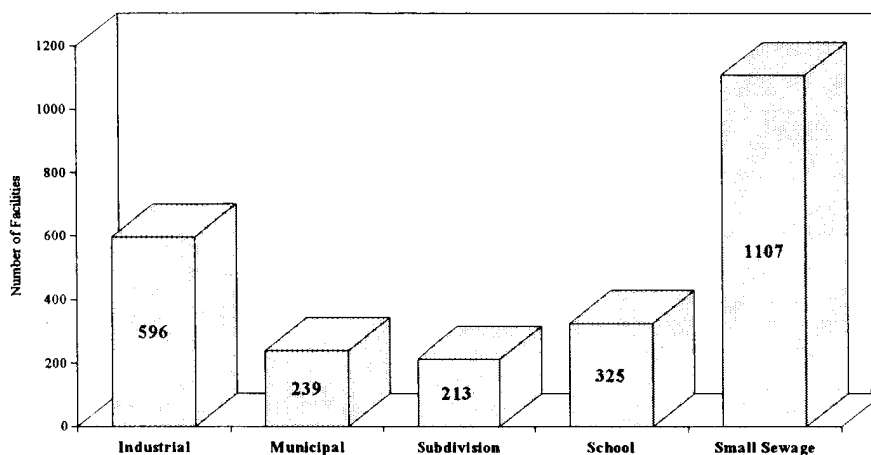
Note: Numbers in parentheses indicate a net decrease in package plants, i.e., more were inactivated than newly permitted in that year.

Source: Division of Water, 1993

As Table 2-2 shows, the decrease has not been uniform across ADDs, but the overall decline in total numbers of new package plants as shown in the bottom "Total" row is quite marked. To put this decrease on the margin into perspective, the following data show the total number of domestic-type wastewater facilities currently on line in Kentucky.

Figure 2-3 presents a summary of domestic-type sewage treatment facilities in operation as of June 1993. In this chart, package plants have been broken down into "school," "subdivision," and "small sewage" categories. "Industrial" facilities in the context of this chart are those treating primarily domestic-type sewage (e.g., sewage from offices), rather than industrial process wastewater.

**Figure 2-3**  
**Facilities with KPDES Permits**  
**as of June 1993**



Source: Division of Water, 1993

Together, school, subdivision, and small sewage plants represent two-thirds of the total number of wastewater facilities permitted in Kentucky. Many of the "industrial" facilities shown could also be considered "package plants" in the strictest sense. However, some of these facilities are quite large, and/or due to the type of wastewater (e.g., coal, surface mining, oil refining, large volumes of cooling water) they should not be considered in the same class as conventional sewage facilities.

Table 2-3, Figure 2-4, and Table 2-4 (a tabular summary of the data in Figure 2-4) show the distribution of wastewater facilities throughout the Commonwealth by river basin and by county, respectively.

**Table 2-3**  
**Number and Type of Facility, by River Basin**  
**1993**

Basin	Industry	Municipal	Subdivisions	Schools	Small Sewage	Total
Tennessee River	14	8	7	10	28	67
Big Sandy River	96	11	14	43	175	338
Licking River	25	20	7	22	119	193
Kentucky River	118	41	23	64	173	419
Salt River	26	16	20	13	51	126
Green River	76	39	7	48	59	228
Cumberland River	71	37	5	46	122	280
Ohio River/Main	157	56	126	75	371	785
Lower Mississippi	11	11	4	4	9	38
<b>Total</b>	<b>594</b>	<b>239</b>	<b>213</b>	<b>325</b>	<b>1107</b>	<b>2474</b>

Source: Division of Water, 1993

### Distribution of Wastewater Facilities in Kentucky 1993



**Table 2-4**  
**Distribution of Wastewater Facilities in Kentucky**  
1993

County	Municipal	Industrial	Package Plants
Adair	1	3	3
Allen	1	0	1
Anderson	1	5	3
Ballard	4	0	2
Barren	1	3	15
Bath	2	1	3
Bell	2	13	15
Boone	1	5	92
Bourbon	3	3	1
Boyd	2	13	64
Boyle	2	3	3
Bracken	2	1	6
Breathitt	1	3	4
Breckinridge	3	4	6
Bullitt	3	5	23
Butler	1	0	4
Caldwell	1	2	1
Calloway	2	1	6
Campbell	2	4	87
Carlisle	2	3	1
Carroll	2	7	6
Carter	2	3	23
Casey	1	1	6
Christian	5	4	4
Clark	1	5	10
Clay	1	4	12
Clinton	1	3	2
Crittenden	1	2	0
Cumberland	1	1	5
Daviess	3	20	43
Edmonson	1	0	8
Elliot	1	0	1
Estill	2	1	9
Fayette	1	10	10
Fleming	1	1	5
Floyd	4	16	34
Franklin	1	8	29
Fulton	3	2	0
Gallatin	1	2	10
Garrard	1	1	3
Grant	3	0	23
Graves	4	3	13
Grayson	3	3	4
Green	2	2	1
Greenup	6	6	5
Hancock	2	12	5
Hardin	4	10	10
Harlan	6	20	21
Harrison	1	6	6
Hart	2	3	3
Henderson	1	9	13
Henry	3	4	5
Hickman	1	1	1
Hopkins	4	19	12
Jackson	1	2	8
Jefferson	9	47	208
Jessamine	3	2	5
Johnson	1	5	42
Kenton	1	4	33
Knott	2	6	17
Knox	1	4	11

County	Municipal	Industrial	Package Plants
LaRue	1	1	2
Laurel	2	2	15
Lawrence	1	13	7
Lee	1	0	3
Leslie	1	7	14
Letcher	3	15	22
Lewis	1	0	8
Lincoln	2	1	5
Livingston	3	9	1
Logan	4	2	2
Lyon	2	1	20
Madison	3	5	25
Magoffin	1	0	6
Marion	2	3	3
Marshall	4	12	28
Martin	1	9	4
Mason	1	5	3
McCracken	3	8	19
McCreary	1	4	21
McLean	4	1	0
Meade	1	2	3
Menifee	1	1	2
Mercer	1	3	11
Metcalfe	1	0	1
Monroe	2	2	1
Montgomery	2	4	4
Morgan	1	0	6
Muhlenberg	3	3	10
Nelson	3	2	2
Nicholas	1	1	2
Ohio	4	8	5
Oldham	2	7	49
Owen	1	0	8
Owsley	1	0	1
Pendleton	2	2	12
Perry	2	19	32
Pike	2	51	147
Powell	2	3	3
Pulaski	2	7	11
Robertson	0	0	4
Rockcastle	3	0	7
Rowan	1	1	10
Russell	1	2	10
Scott	4	4	7
Shelby	2	3	9
Simpson	1	2	1
Spencer	1	0	1
Taylor	1	3	8
Todd	3	1	1
Trigg	1	1	11
Trimble	2	3	1
Union	3	6	8
Warren	1	5	3
Washington	1	1	3
Wayne	1	0	6
Webster	3	7	9
Whitley	1	9	12
Wolfe	1	0	6
Woodford	2	4	4
<b>TOTALS</b>	<b>239</b>	<b>596</b>	<b>1645</b>

On the map of Kentucky shown in Figure 2-4, the top value in each county indicates the number of municipal systems in the county. The middle value shows the number of industrial facilities. The bottom value indicates the number of package plants (including school, subdivision, and small sewage). All information on the map corresponds to the columns in Table 2-4. The map shows that the highest concentrations of package plants exist in Northern Kentucky, the Louisville/Jefferson County area, and Pike County in Eastern Kentucky.

Perhaps the most visually compelling way to represent the number and distribution of wastewater facilities would be a map of Kentucky showing the location and type of each facility. In fact, some work on such a database has already been done in a collaborative effort of the U.S. Geological Survey (USGS), the Division of Water, and the Purchase Area Development District. The locations of wastewater facilities in 38 Kentucky counties were incorporated into a series of computerized maps using Geographic Information Systems (GIS) technology.<sup>6</sup> As a component of the statewide initiative toward greater use of GIS technology, more work is being done by staff in the Natural Resources and Environmental Protection Cabinet (NREPC) to build on this database and complete it for the entire Commonwealth. At the time of this report, the database had not yet been completed.

Having considered the number and distribution of wastewater facilities—particularly package plants—in the Commonwealth, this chapter now examines the performance record of small package plants versus larger, municipal wastewater facilities. The data analyzed have been compiled from the Permit Compliance System (PCS), a database designed by the U.S. Environmental Protection Agency (EPA) and used by the DOW to record both self-monitoring and field inspection data on KPDES permittees and to track each facility's compliance with the terms of its discharge permit.

It should be noted that the following analyses concentrate on municipal and package plants rather than industrial facilities. In the process of extracting data, the difficulty of sorting those facilities that treat industrial process wastewater from those treating domestic-type wastewater (e.g., from offices) and those treating both kinds precluded the incorporation of the latter facility types into the analyses below.

## Discharge Monitoring Report (DMR) Data

All holders of KPDES permits for treated sanitary wastewater discharges must regularly monitor their own effluent to determine compliance with the allowable limits for all water-quality parameters specified in their permits. Every facility treating domestic-type sewage must test for and report biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, and ammonia nitrogen. Other parameters may also be required, depending on the facility type, waste stream, and condition of the receiving water body.

The results of each facility's self-monitoring must be submitted on a Discharge Monitoring Report (DMR) to the DOW either monthly or quarterly, as specified in the permit. Each wastewater utility must file these reports on forms approved or provided by the DOW no later than 28 days after the end of the month or quarter that the reports cover.

Wastewater facilities can commit three types of violations related to their DMRs:

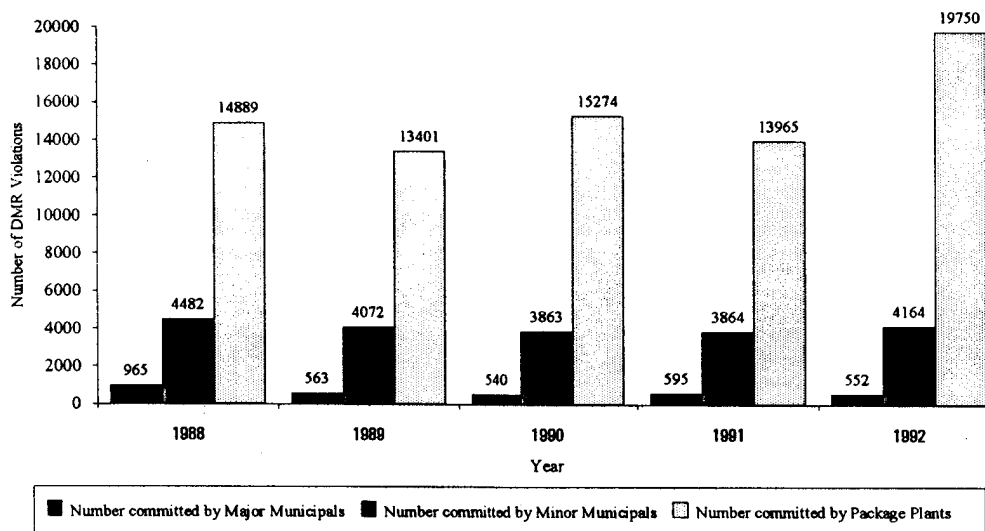
- \* *Numeric* -- violation of an effluent limit, e.g., suspended solids
- \* *Non-numeric* -- failure to report on a parameter the facility is required to monitor



\* *Non-receipt*-- failure to submit a DMR by the required deadline

Figure 2-5 shows the total number of DMR violations reported by major and minor municipal facilities and package plants from 1988 to 1992.

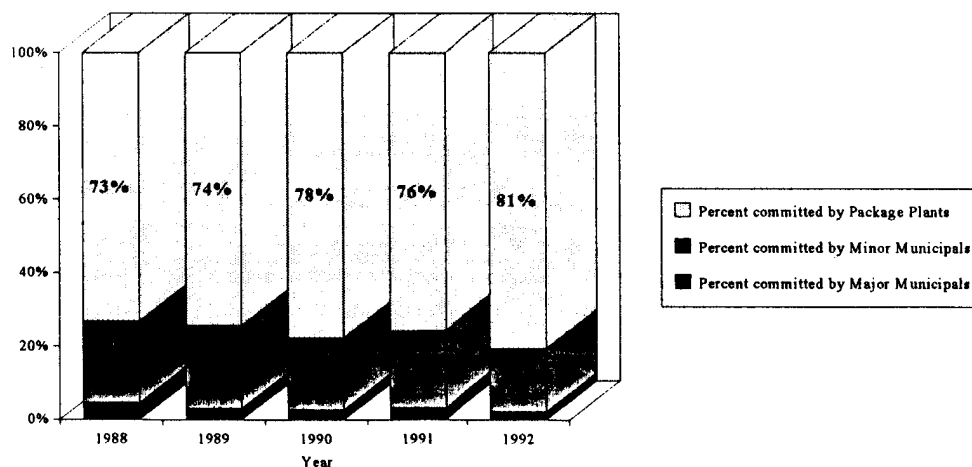
**Figure 2-5**  
**Total Reported DMR Violations by Class**  
**1988-1992**



Source: Division of Water, 1993

Figure 2-6 below uses the same data to show each facility category's share of the total DMR violations.

**Figure 2-6**  
**Distribution of DMR Violations by Class**  
**1988-1992**



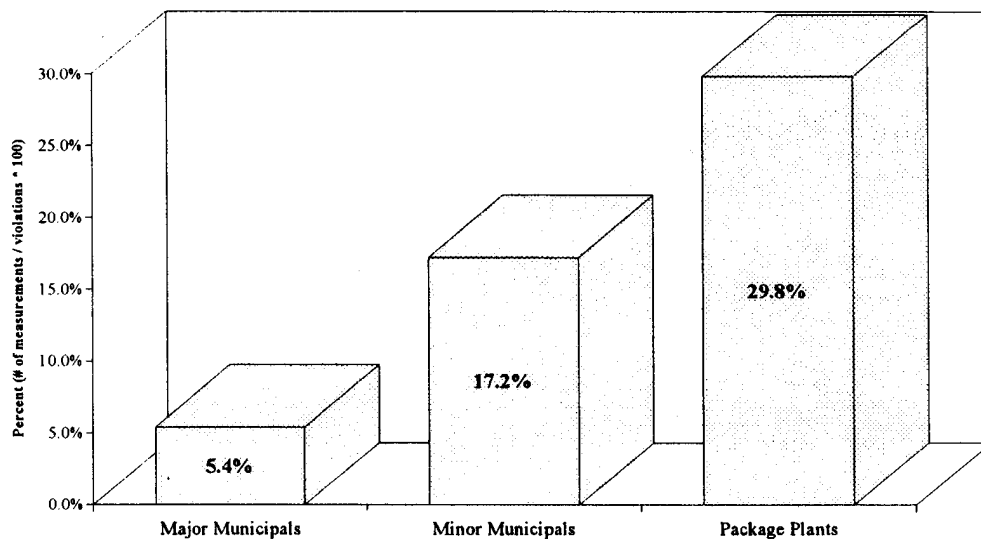
Source: Division of Water, 1993

(Percentages are shown for package plants only)

It may be expected that package plants are responsible for the vast majority of violations, since they constitute most of the wastewater facilities in operation. However, many package plants are required to submit DMRs only on a quarterly basis, while the municipal facilities must report monthly to the DOW. Consequently, though larger facilities have more opportunities to violate DMR requirements, they still account for only a very small portion of the total DMR violations.

Figure 2-7 presents the percent of measurements in each class for which DMR violations were recorded in 1992; i.e., for which facilities either failed to report a required test or actually reported violating a permit limit.

**Figure 2-7**  
**Violations as Percent of Permit Parameters**  
**1992**

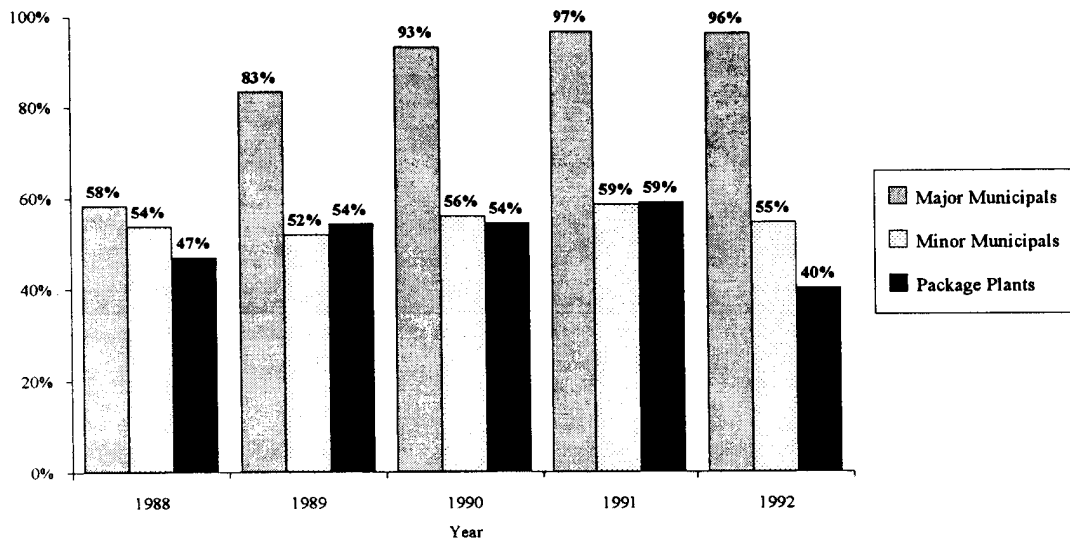


Source: Division of Water, 1993

The figure above indicates that the smaller the system is, the more of its parameters it violates, either by omission or by actually exceeding a limit.

A comparison of the types of DMR violations most often committed by facilities in each class sheds further light onto the quality of operation typical of that class. Figure 2-8, for example, shows the percent of DMR violations in each class that were numeric in nature.

**Figure 2-8**  
**Percent of DMR Violations in Each Class that were Numeric**  
**1988-1992**



Source: Division of Water, 1993

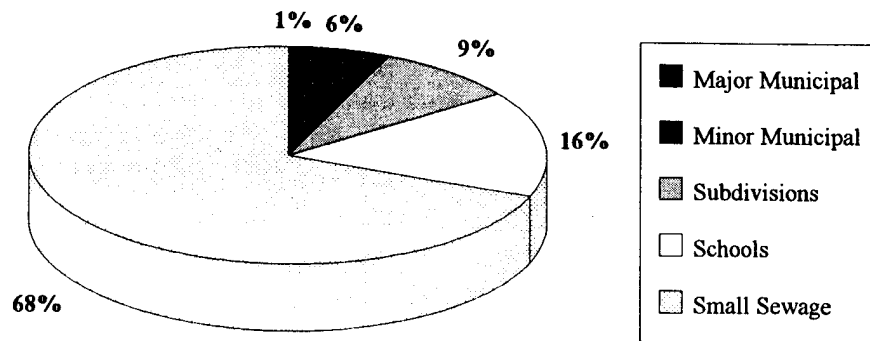
As the above figure indicates, most of the violations committed by major municipal facilities on their DMRs were numeric in nature, and this percentage has increased significantly since 1988. Conversely, since their total DMR violations have not increased (refer back to Figure 2-5), their rate of non-numeric violations must be decreasing. This trend suggests that major municipalities have increased their competence in completing their required monitoring and submitting their DMRs in a timely manner.

For smaller facilities, this trend has been almost opposite, indicating a significant amount of missing data and tardy reporting. Such information about the reporting record of small wastewater facilities suggests several possible problems:

- (1) the owner/permittee cannot or will not properly report the required data; or
- (2) the level of operator competence is inadequate to deal with basic monitoring and reporting requirements (the operator may not even be DOW-certified); and consequently,
- (3) there are probably more numeric violations of effluent limits than DOW records show, simply because such violations cannot be recorded unless they are monitored and reported.

Further support of these suspicions is provided by DOW data that track the number of wastewater facilities in each class that have failed to submit their DMRs by the deadlines stipulated in their KPDES permits. This information is summarized in Figure 2-9.

**Figure 2-9**  
**Facilities Not Submitting One or More Required DMR**  
**1992**



Source: Division of Water, 1993

The data shown above call into question the operational practices of those facilities whose operators have failed to submit the results of their required monitoring activities in a timely manner. Considering that many small package plants are required to submit reports only quarterly, rather than monthly as their municipal counterparts must do, the performance discrepancy becomes even more notable. Given the routine nature of the monitoring required, the fact that an operator would fail to submit one or more DMR suggests at least an inattention to detail. It also may indicate an inability to perform the numerous tests and procedures needed to keep a facility from causing water quality problems or to detect existing problems.

## Field Inspection Data

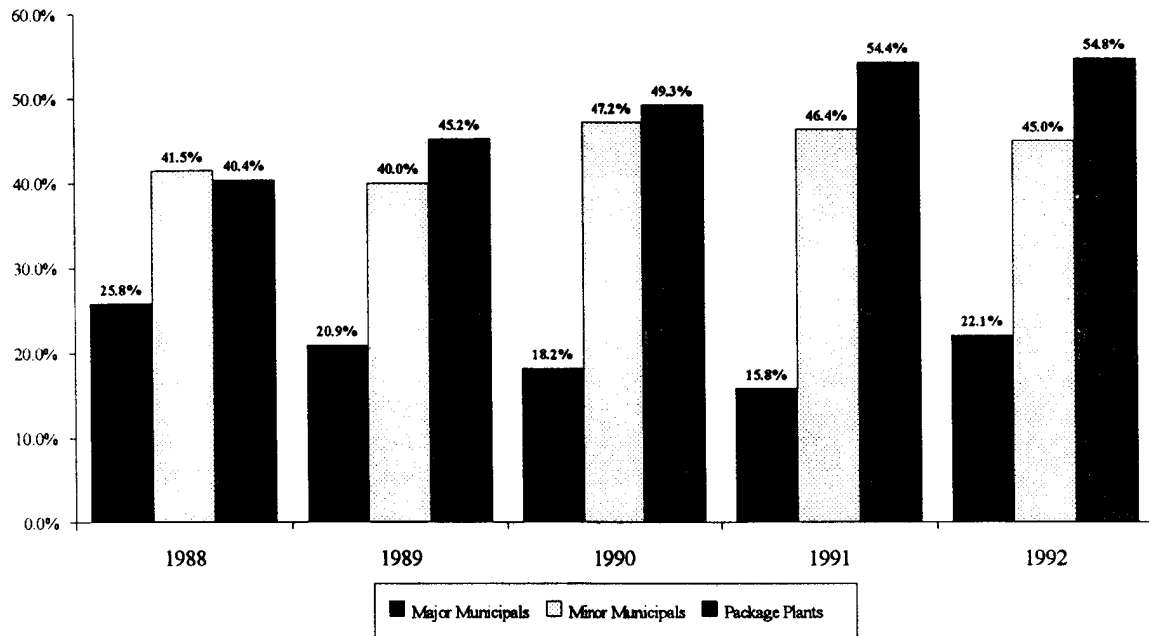
The preceding analysis of DMR data gives some indication of the relative performance of package plants in comparison to municipal facilities in Kentucky. However, the analysis can be only as reliable as the information received. For this reason, the DOW conducts its own assessment of wastewater facilities' performance through field inspections of facilities and their effluent. Not every facility is inspected in a given year, but some are given multiple inspections, especially if they have been determined to be in significant noncompliance<sup>7</sup> and/or have received a marginal or unsatisfactory rating as a result of their first inspection.

A **satisfactory** rating indicates that all aspects of facility operation and administration appear to be in good order. A **marginal** rating means that the facility's performance is about average in some areas but not up to standards in one or more other areas. An **unsatisfactory** rating indicates consistent problems that the facility operator has been told to correct, and a Notice of Violation usually follows soon afterward if the problems are not addressed. No official formulae or guidelines exist for assigning these ratings. That task is left to the professional judgment of the field personnel conducting the inspections.

The results of field inspections of wastewater facilities from 1988-1992 have been analyzed by category in Figure 2-10 below. The chart shows, for each category of wastewater facility, the percent of

inspections that resulted in the issuance of a marginal or unsatisfactory rating.

**Figure 2-10**  
**Percent of Inspections in Each Category Resulting in**  
**Marginal or Unsatisfactory Ratings**  
**1988-1992**

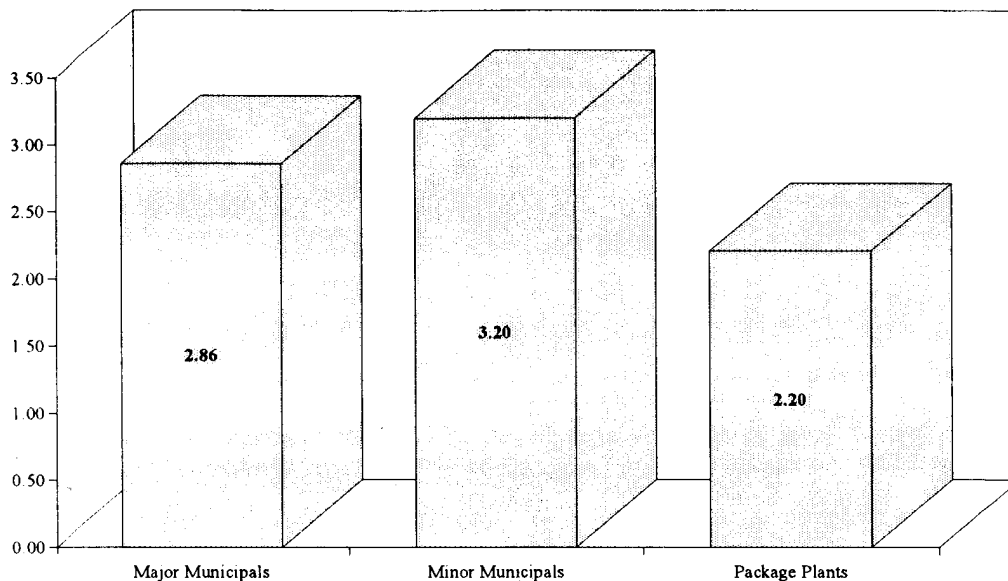


Source: Division of Water, 1993

The data clearly indicate that the smaller facilities receive a much higher proportion of marginal or unsatisfactory ratings than do the major municipal systems. Furthermore, the inspection record seems to be worsening for package plants and minor municipals,<sup>8</sup> while the major municipals appear to be generally improving over the period analyzed.

The same data have been further examined to determine whether the marginal or unsatisfactory inspections in each category tend to be earned by a few consistently substandard facilities or by a more significant number of the inspected population, since many facilities are inspected more than once a year. For 1992 data in each category, the number of marginal or unsatisfactory inspections recorded is divided by the number of facilities reported to have received marginal or unsatisfactory ratings. The smaller the resulting quotient, the more facilities that received the poor ratings. The results of this analysis are summarized in Figure 2-11.

**Figure 2-11**  
**Ratio of All Marginal or Unsatisfactory Inspections to**  
**Number of Facilities Receiving Such Ratings**  
**1992**



Source: Division of Water, 1993

Figure 2-11 shows that marginal and unsatisfactory inspections in 1992 tended to be a more widespread problem among package plants; i.e., such ratings were given to numerous facilities rather than a few chronically poor performers. The data also indicate that the marginal and unsatisfactory ratings in the major municipal category tend to be garnered by fewer, more troublesome facilities.

Thus, an observation of the inspection data gathered from the DOW field offices supports the findings of the earlier analysis of self-monitoring data: package plants, on the whole, exhibit a level of performance consistently inferior to municipally owned facilities. Having documented this tendency numerically, this chapter now turns to a consideration of the factors contributing to the performance problems of package plants.

### **Causes of Operational and Performance Problems with Package Plants**

The generally poorer wastewater treatment record of package plants is linked to their image as a complete, self-contained "package." They are fairly easily installed, and most operate on such a small scale in comparison to municipal facilities that they may seem hardly to have any environmental impact at all. In addition, because many of them are installed in fairly out-of-the-way places, they and the problems they may cause may too easily be neglected.

Most significantly, in part because many manufacturers stress the ease of operation of their product, those responsible for actually installing and running a package plant may too willingly give maintenance needs an inadequate level of attention. Most package plant owners (e.g., developers, school systems, commercial establishments) are not primarily in the business of wastewater treatment, and their attention and resources are typically devoted to other priorities. Consequently, many tend to be unwilling

or financially unable to properly construct, maintain, upgrade as needed, or monitor their plants. Perhaps they are even unaware of (or choose to ignore) the legal requirements for installing, operating, and monitoring these facilities. Despite the division's timely pursuit of all enforcement cases referred, the DOW's field staff cannot feasibly police every package plant constantly. Thus enforcement activity may not always keep pace with these violations.

In many cases, a package plant owner will hire a part-time employee to look after the plant and perform the necessary maintenance, monitoring, and reporting duties. This arrangement could be a decided improvement if the operator is certified and possesses an adequate level of competence. Unfortunately, experience has shown that package plant operators too often do not have the time or resources necessary to adequately operate and maintain their facilities. If they do not have the support of the facility owner to invest in the plant's management, the operator's problems are compounded.

In fact, a lack of proper maintenance of equipment is the root cause of most operational and performance problems with package plants. Like any other piece of equipment, a poorly maintained package plant is prone to malfunction and gradual deterioration. Poor plant operation quickly translates into permit violations and water quality degradation.

An important related concern is that many of Kentucky's package plants are now more than 20 years old. Not only were these facilities not designed to meet many of the performance standards now required by federal and state law, but many of them have since outlived their useful life. The typical advertised design life of a wastewater treatment plant is only 20 years, an estimate based upon an assumption of adequate preventive and corrective maintenance. A package plant that does not receive adequate, on-going maintenance will deteriorate and require some sort of replacement well before it should.

The package plant's collection system deteriorates over time as well, creating leaks where groundwater can infiltrate the system and increase the volume of wastewater flowing into the plant for treatment. These infiltration and inflow ("I&I") problems occur in many systems and can severely hamper treatment performance. They place an added burden on the plant and can even overwhelm it in storm events, upsetting the treatment process and causing water quality violations.

Package plants also tend to encourage growth where they are located, and growth creates an added demand for wastewater services. A package plant can quickly become overloaded by the addition of users in newly developed areas if its owners incorrectly gauge the plant's capacity. On the other hand, where more and more package plants are installed to meet the ever-increasing demands, local streams become overloaded with wastewater effluent and suffer water quality degradation. Such is the case with Floyd's Fork in Jefferson and Bullitt counties, along which the DOW will no longer permit additional wastewater plants.

Federal, state, and local agencies throughout the United States have experienced and documented similar difficulties with package plants for years. A report prepared for the U.S. Office of Water Research and Technology investigated the positive correlation between wastewater plant size and operational reliability. The study found that

"Small randomly placed wastewater treatment plants can be inefficient in terms of reliability. Studies...indicate that there is a high correlation between the size of a treatment plant and the percentage of time during which the plant fails to perform according to design standards. In short, the larger the treatment plant, the more reliable is its performance."<sup>9</sup>

## **Conclusion**

It is widely acknowledged that in many cases small wastewater plants sited and operated without any overall planning tend to operate less efficiently and effectively than better-planned, larger facilities that could serve the customer bases of many of these small plants. In many cases, service could be provided to these customers at a lower cost in the long run, and the larger facility could ensure a higher quality of treatment.

Based on the economic, environmental, and administrative problems associated with the operation of package plants, Kentucky's DOW has endorsed a policy developed by the U.S. EPA of encouraging the consolidation of the physical operation of wastewater treatment and/or the responsibility for overseeing the service, where possible. This policy is referred to as "regionalization" and is described more fully in the following chapter.

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## **CHAPTER NOTES**

<sup>1</sup> A 1982 outbreak of hepatitis-A at Buttermilk Springs in Meade County caused 110 cases of illness and one fatality. Tests revealed that many wells in the area were contaminated by bacteria. The Environmental Quality Commission's *State of Kentucky's Environment* report, 1992, p. 62.

<sup>2</sup> *Ibid*, p. 35.

<sup>3</sup> *Ibid*, p. 62.

<sup>4</sup> For a discussion of the Section 205(j)/604(b) program, refer to Chapter 6 of this report.

<sup>5</sup> For an in-depth discussion of ADDs and their wastewater-related activities, refer to Chapter 6 of this report.

<sup>6</sup> For more information about this project, refer to the description of the Purchase ADD's wastewater regionalization activities in Chapter 6.

<sup>7</sup> Even in the best-operated wastewater systems, some violations are inevitable given variations in the waste stream received, weather patterns, and other natural and human-induced phenomena beyond the control of the wastewater operator. For that reason, the DOW has established a "Significant Noncompliance" designation to separate the occasional and/or minor violators from the chronic and/or acute ones. Significant noncompliance is defined as chronic violations of discharge limits, effluent discharges dangerous to public health, or a chronic failure to meet compliance schedules and reporting.

<sup>8</sup> Part of this gradual increase may be due to the increasing package plant surveillance efforts of the DOW over the time period analyzed.

<sup>9</sup> *Water Pollution Control Legislation: Hearings Before the Subcommittee on Air and Water Pollution of the Committee on Public Works*, United States Senate 92d. Congress, Washington, D.C.: United States Government Printing Office, May 1971, p. 923



## What is Regionalization?

"The General Assembly of the Commonwealth of Kentucky determines as a legislative finding of fact that reduction of the number of operating *water* districts in the Commonwealth [would] be in the public interest, in that mergers of such districts [would] tend to eliminate wasteful duplication of cost and effort, result in a sounder and more businesslike degree of management, and ultimately result in greater economies, less cost, and a higher degree of service to the general public; and that the public policy favors the merger of *water* districts wherever feasible." KRS 74.361 (1) (emphasis added)

The preceding excerpt from Kentucky statute summarizes in concise terms the concept of, and justification behind, the existing policy of regionalizing water districts in the Commonwealth. Based on the economic, environmental, and administrative burdens created by the proliferation of wastewater facilities in Kentucky, the DOW believes that this regionalization concept should be extended in a logical progression from drinking water to wastewater regulation.

In June 1990, staff from several branches of the DOW prepared "A Strategy for Regionalization of Treated Wastewater Discharges in Kentucky."<sup>1</sup> The strategy stated that:

"A desirable objective of effective water management in the Commonwealth is to minimize the number of treated wastewater discharges to the state's waters. The existing proliferation of very small and so-called "package" plants is counterproductive to the stated objective, if alternatives are available, e.g., regional publicly-owned treatment works (POTWs)." <sup>2</sup>

In the context of this strategy, the term **regionalization** is defined as:

1. the elimination of a treatment facility with diversion of its raw wastewater flow to a POTW;
2. the connection of one or more existing facilities into a new or existing regional treatment facility;
3. the prevention of new discharges, where possible, by requiring connection to an existing facility; or
4. the creation of sanitation districts, regional wastewater authorities, or other cooperative ownership arrangements.

Regionalization may involve various arrangements for construction and operation of the necessary facilities. For example, several jurisdictions might form a regional authority to construct and operate one or more centralized treatment facilities as well as all interceptor and collector sewers. Alternatively, one community might act as the lead agency in constructing and operating a centralized treatment facility and the interceptors serving several jurisdictions, while each jurisdiction maintains responsibility for its own collection system.

Wastewater regionalization need not, however, involve construction of physically interconnected facilities. For example, individual jurisdictions might be responsible for construction of local facilities,

including any on-site systems, while a regional authority would construct and operate other service facilities, such as sludge treatment and disposal facilities. The regional facility may even assume responsibility for operating and/or maintaining the local treatment facilities, including on-site (e.g., septic) systems.

Regionalization offers several advantages over smaller separate facilities, including economies of scale in construction and purchasing; the ability to afford and attract more experienced operators; better treatment performance; a constraint against unplanned growth; and the reduced environmental and administrative burdens associated with fewer treatment sites and discharge points.

As with most solutions, regionalization also may involve some costs as well as benefits. Potential disadvantages of regionalization may include longer design and construction periods, the possibility of induced growth and its consequent adverse environmental impacts (though not to the extent that package plants can cause such problems), and the need for new organizational structures and agreements. To the extent that the necessary measures involve the cooperation of disputing parties, the process of achieving regionalization can also cause or exacerbate political strife at the local level and/or between local and state entities.

The regionalization initiative should not be seen as a wholesale indictment of package plants and on-site systems. In some situations, such facilities offer the most reasonable choice for wastewater treatment. And in other places they simply cannot, and may never, feasibly be eliminated given economic, geographic, and technical constraints. However, in too many cases they also constitute a wastewater control method whose proper and continuing operation and maintenance are beyond the interest and capability of the owner/builder/developer. In general, wastewater regionalization promises improved water quality throughout the Commonwealth of Kentucky.

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## CHAPTER NOTES

<sup>1</sup> Bob Rogers, "A Strategy for Regionalization of Treated Wastewater Discharges in Kentucky," June 1990. That document has been incorporated into this report as Appendix B.

<sup>2</sup> *Ibid.*, p.1.

## **Mechanisms for Achieving Regionalization**

Kentucky statutes and regulations have given a variety of mechanisms to state and local authorities that can be employed in the effort to achieve regionalization in the physical or organizational sense. These mechanisms are intended to control the siting, construction, operation and maintenance, and administration of both large and small, public and private wastewater systems. The mechanisms vary in content from conferring authority to establish political subdivisions to operational requirements and numerous sources of technical assistance.

In addition, several state and federal entities offer a variety of funding directly for wastewater projects or for infrastructure projects such as wastewater systems that further economic development. Other entities offer technical assistance to small wastewater system operators. These entities can provide information and advice to communities dealing with wastewater-related problems and potential regionalization projects.

This chapter will discuss the mechanisms available to state and local entities to achieve regionalization.<sup>1</sup>

### **Organizational Structures for Delivering Wastewater Service**

A public wastewater facility must comply with organizational requirements regarding how the utility is to be set up, financed, and made accountable to its customers. Numerous state regulations specify alternative mechanisms for setting up and running utilities. The most important of these organizational forms, for the purposes of regionalization, are summarized below.

#### **Municipal Utilities**

In most small and medium-sized Kentucky cities, the wastewater utility is part of municipal government just like the street and fire departments. Policy decisions concerning the wastewater system are made by the city's legislative body and are implemented by city employees in charge of the facility or by firms whose services are retained by the municipality.<sup>2</sup>

A variation of the municipal utility is a separate utility commission established by city ordinance<sup>3</sup> The municipal government sets up a quasi-independent municipal utility board of commissioners and appoints the members to staggered terms of office. The utility commission generally hires its own manager to carry out the policies established by the utility's board of commissioners. The city legislative body, however, must approve changes in the schedule of utility rates and authorize the sale of utility revenue bonds.<sup>4</sup>

#### **Sanitation Districts**

KRS Chapter 220 (specifically, KRS 220.010 through 220.613) provides authority for the Secretary of the NREPC to approve the creation of sanitation districts within any county or counties of the state. Among the purposes for which sanitation districts may be established, KRS 220.030 includes the provision of the collection and disposal of sewage and other liquid wastes produced within the district; and, to accomplish this purpose, the construction of laterals, trunk sewers, intercepting sewers, siphons, pumping stations, treatment and disposal works, and the operation and maintenance of these components. In

addition, a sanitation district may be established to provide for the management of on-site sewage disposal systems.

In order to create a sanitation district, a petition signed by 60 percent of the freeholders within the territory proposed as a district must be filed with the Secretary of the NREPC.<sup>4</sup> The proposed district may include multiple counties, but it must be contained within the jurisdictional boundaries of the counties it was organized to serve.<sup>5</sup> The Secretary of the NREPC may alter the district boundary proposed by the petitioners.<sup>6</sup>

Sanitation districts are governed by an advisory board of directors comprised of three members appointed by the county judge/executive. In two-county districts, the judge/executive of the county in which the greater portion of the population of the district resides may appoint two directors, and the judge/executive of the other county may appoint the third. In districts of more than two counties, all the judges/executive jointly select the directors.<sup>7</sup> The board of directors must submit to the NREPC a plan for the improvements for which the district was created and should project the necessity of future extension and enlargements in their planning.<sup>8</sup>

KRS 220.080 Sections 2 and 3 restrict the inclusion of municipal property into a sanitation district. Section 2 authorizes the governing body of any city of the first class to determine by ordinance whether city property lying outside the corporate boundary shall be included in any sanitation district. Section 3 allows the governing body of a city of the second or third class to determine by ordinance whether the city or any portion of it shall be included in the district.

KRS Section 220.285 explicitly grants authority to the sanitation district to provide services for wastewater generated outside the district. The source(s) of such wastewater are not limited on any geographical basis (except that the district cannot provide sewer service within a city of the first class without the city's permission).

The petition procedure required to create a sanitation district under KRS Chapter 220 (see above) is involved and likely to generate political strife at both the state and local levels. However, **KRS Chapter 67** offers an easier way to form a sanitation district under Kentucky statute by providing that a county judge/executive, with approval of the fiscal court, may establish any special district, including sanitation districts formed under KRS Chapter 220.

As with sanitation districts established pursuant to KRS Chapter 220, a sanitation district established under KRS Chapter 67 is governed by a board of directors appointed by the county judge/executive. The number of directors is determined by the number of counties in the district.

The Caveland Sanitation Authority, encompassing the communities of Cave City, Horse Cave, and Park City and Mammoth Cave National Park, was created under KRS Chapter 67 with commitments from the three municipalities and the National Park Service. The Authority received federal funding to implement a regionalization project largely intended to protect the region's cave systems from further degradation by improper sewage disposal.

The 1990 General Assembly expanded KRS Chapter 67 to permit counties, except those containing a first-class city or an urban county government, to vote to merge all units of city and county government into a charter county form of government to promote efficient and economical management of services.<sup>9</sup>

Neither KRS Chapter 220 nor KRS Chapter 67 sanitation districts are utilities within the meaning of KRS 278.010(3)(f)<sup>10</sup>. They are, therefore, exempt from regulation by the Public Service Commission (PSC).

### **Metropolitan Sewer Districts**

A metropolitan sewer district (MSD) is a public corporate body established under KRS Chapter 76 and vested with the power to control, possess, and supervise existing sewer and drainage systems of first- or second-class cities; prepare plans and designs of sewer systems; construct additions to district facilities; and establish, construct, operate, and maintain sewage treatment and disposal plants. An MSD may be formed by any county containing a first- or second-class city.<sup>11</sup>

The MSD board consists of seven members: three appointed by the county judge/executive, with the approval of the fiscal court, and four appointed by the mayor, subject to the approval of the city's legislative body. In counties containing a city of the first class, an eighth member is appointed by the county judge/executive to represent that city.

Currently, only one true MSD exists in the state: the Louisville/Jefferson County MSD (however, because Lexington-Fayette County is organized as an urban-county government, its wastewater utility functions in much the same way). The Louisville/Jefferson County MSD plays a very active role in regionalizing wastewater service with its facilities. It is beginning to extend its efforts in Jefferson County watersheds that extend into adjacent counties. Most recently, the MSD is working to develop an interlocal agreement (see below) with Oldham County to provide service to an Oldham County subdivision from a plant located in Jefferson County.

### **Interlocal Agreements**

KRS Chapter 65 offers the option of developing **Interlocal Agreements** between governmental entities to essentially contract with each other for specific services. This arrangement does not require its own special governing board but instead can be administered by an existing entity such as a county fiscal court.<sup>12</sup>

Currently the Louisville/Jefferson County Metropolitan Sewer District (MSD) and Oldham County are pursuing the possibility of entering into an Interlocal Agreement to connect the Great Oaks subdivision in Oldham County to an MSD facility in Jefferson County. Both the subdivision and the sewage treatment facility lie within the same watershed. However, since MSD cannot expand its service area outside Jefferson County, a contractual arrangement through the Interlocal Agreement mechanism may provide a means to overcome jurisdictional barriers and develop a sound, watershed-based wastewater solution for the Oldham County subdivision.

### **Joint Sewer Agencies**

As an alternative to establishing a metropolitan sewer district pursuant to KRS 76.010, KRS 76.231 provides that any city of the second class, together with the county in which it is located, may jointly establish a sewer agency for the purpose of providing sewer and drainage facilities within the city and the county. The legislative body of the city and the fiscal court of the county enact identical ordinances establishing the joint sewer agency, and all powers granted a metropolitan sewer district may be granted by ordinance to the sewer agency, with any restrictions or qualifications necessary to conform to the local needs of the county and the city.

The legislative body of the city and the fiscal court of the county jointly establish a schedule of rates, rentals, and charges to be collected from all real property served by the facilities of the sewer agency. The joint sewer agency is administered as a separate legal entity or by a jointly appointed administrator or joint board. Any third- to sixth-class city in the county may, by ordinance, join such a district.

### **Water Districts**

Water districts are organized under KRS 74.010. In addition to their other powers regarding drinking water service, under KRS 74.407 water districts may also acquire, develop, maintain, and operate sewage disposal systems, within the confines of their boundaries, not including territory within the boundaries of existing municipal corporations that have the authority to provide such sewer services unless the water district secures the consent of such municipal corporations. The district must comply with the financial reporting, rate-making, and other regulatory controls of the PSC.

### **For-Profit Sewer Companies**

In general, a for-profit sewer company serves an unincorporated area in which the sewers and sewage treatment system are provided by a developer (e.g., a rural or suburban subdivision) and continue to be owned and operated by the developer. This type of system is considered a utility pursuant to KRS Chapter 278 and as such is subject to regulation by the Public Service Commission (PSC). The utility owner must obtain from the PSC a certificate of convenience and necessity to construct, improve, or extend the system; must have an approved rate schedule; and must comply with other regulations set forth in 807 KAR Chapter 5.

### **Homeowners Associations**

A homeowners association is an organization of residents living in a subdivision served by a common, usually package, wastewater treatment plant. This entity manages the common facility and assesses rates for the service against all residences in the subdivision.

To qualify as a homeowners association sewer system under KRS Chapter 273, it must be demonstrated that the operation does not serve the public at large, and thus is not a utility. The PSC may examine the organization's bylaws to ascertain that the system is not controlled by the developer or the developer's designee; that the members are setting their own rates; that sewer service within the subdivision is mandatory and required by an approved subdivision plat; and that others outside the geographic confines of the subdivision are not offered service.

If the above conditions are satisfied, the PSC will determine that the homeowners association does not constitute a utility, and thus that the PSC has no authority over it. Otherwise, the entity will be regulated in the same way as a KRS Chapter 278 for-profit sewer company (see previous section).

## **Facility Construction Funding Sources**

### **State Revolving Fund (SRF)**

Significant loan support for Publicly Owned Treatment Works (POTW) construction is available to local Kentucky projects through the U.S. EPA. Federal grants are directed to the various states which,

after providing a state "match" of 20 percent of the federal amount, can use the money to capitalize a State Revolving Fund (SRF) for wastewater projects. This funding source is also known as the Kentucky Infrastructure Authority's (KIA) Fund A. It is administered by the DOW and KIA through the DOW's Facilities Construction Branch.

By state statute, two different interest rates are available on SRF loan monies, depending on the relative economic status of the Kentucky county containing the applicant jurisdiction. For those counties whose median household income is below the statewide average, 20-year loan money is available for public wastewater projects at 5 percentage points below market rate. For the remaining counties, the rate is 3 points below market rate.

SRF monies can cover up to 100 percent of eligible construction costs as well as planning and design, other engineering work, and project administration. In addition to paying for wastewater treatment works and major interceptor sewers, SRF monies can be used to cover collector sewer construction, sewer rehabilitation, combined sewer separation, and individual septic tank disposal systems, provided that a public agency loan applicant can demonstrate the ability to repay the loan. Funding is also available for other improvements required in discharge permits, e.g., backwash lagoons at drinking water facilities; for landfill leachate collection systems; and for industrial pretreatment facilities.

### **Kentucky Infrastructure Authority (KIA) Fund B**

The Kentucky Infrastructure Authority's Fund B provides financing for any type of infrastructure project required to accommodate economic development and job creation. Normally, such development must be guaranteed before an applicant may access Fund B loan monies.

Applicants within a county whose median household income is below the statewide average are eligible for 20-year loans at 4 percentage points below market rate. Applicants from other counties are eligible for 20-year loans at 2 points below the market rate.

### **Governmental Agencies Program (KIA Fund C)**

The KIA Fund C can provide loan money for a wide range of uses, including all types of public wastewater and water project construction. Fund C provides local government agencies access to funding through the municipal bond market at better terms than most local agencies could obtain on an individual basis. Fund C monies are, however, essentially "market rate" funds, and thus are less attractive than KIA Funds A or B. Loans are extended for a 30-year term.

### **Farmers Home Administration (FmHA) Program**

One of the most popular sources of available loans and loan/grant combinations is the Farmers Home Administration (FmHA). FmHA financing is available for wastewater projects in rural communities of less than 10,000 population, rural special districts, and nonprofit organizations. When funds are available, FmHA can make two different types of financial commitments to eligible applicants: loans and loan/grant combinations.

FmHA offers three interest rates on its loans. The highest is the *market rate loan*, a fixed-rate loan based upon a national index of municipal bonds. FmHA applicants in areas with a median household income below the median for Kentucky, and who can show that their proposed wastewater project will alleviate an established health or sanitary problem, may apply for the *poverty rate*. An *intermediate rate* applies to applicants who meet the poverty income criterion but fail to meet the health and sanitary problem standard.

Most FmHA loans extend over a 40-year term, beginning with the construction phase; as most wastewater facilities are designed for only a 20-year service life, a community can expect to continue paying debt service on a failing system at the same time it must find the funds to rebuild it. However, the low monthly payments for an FmHA loan are attractive to many communities, especially those with many low-income residents, despite the higher total payback relative to a 20-year loan.

### **Community Development Block Grant (CDBG) Program**

The HUD Community Development Block Grant (CDBG) program, administered in Kentucky by the Department of Local Government, also provides significant funding to public entities for rural wastewater projects. Applicants compete for assistance in four general categories: Economic Development, Public Facilities, Housing, and Special Projects. Wastewater projects may apply in either of the first two categories.

Economic Development applications must relate to job creation or retention. Funds from this category may only be spent on wastewater needs if a sewer line extension or wastewater treatment plant can be shown to have a direct bearing on job creation or retention. Of the jobs created or retained, 51 percent must go to persons of low or moderate income.

The Public Facilities category directly finances wastewater and other needs. To establish eligibility, applicants must demonstrate that at least 51 percent of project beneficiaries are of low to moderate income.

### **Appalachian Regional Commission (ARC) Grant Funding**

The 49 Kentucky counties within the Appalachian region may look to the interstate Appalachian Regional Commission (ARC) for partial wastewater grant funding.

The chances of a project's receiving ARC funding depend heavily on whether or not its proposed service area lies in one of Kentucky's 36 "distressed" counties. For these counties, water, wastewater, and solid waste projects receive top priority. In the other 13 Kentucky Appalachian counties, ARC prioritizes the creation of jobs and private investment; consequently, unless some aspect of a wastewater project can demonstrate more than a tenuous link to these priorities, an applicant in a non-distressed county cannot place much confidence in securing ARC grant funding.

The ARC grant contribution may not exceed 50 percent of eligible project costs. If applicants seek multiple sources of funding for a proposed project, ARC must satisfy itself that all other funds have been committed before awarding any of its own grant money. In addition, the total federal grant participation (including ARC dollars) cannot exceed 80 percent of eligible costs. Finally, given the relatively small sum of ARC money available to the Kentucky Appalachian region, ARC grants are typically capped at \$300,000.

### **Economic Development Association (EDA) Program**

The EDA Public Works and Development Program provides grants to help distressed communities attract new industry, to encourage business expansion, to diversify local economies, and to generate long-term, private sector jobs. Eligible projects funded include sewer facilities primarily serving industry and commerce. An applicant for the EDA grant funds may be a state, a political subdivision of a state, a special-purpose unit of government, or a public or private nonprofit organization or association representing an EDA-designated redevelopment area or an EDA-designated economic development center.



Because the demand for the EDA grant dollars so greatly exceeds the supply, the EDA has developed stringent selection criteria based on the proposed economic benefit of the project, criteria that preclude many projects. EDA accepts pre-applications only from EDA-eligible counties and screens them before inviting full applications. Of Kentucky's 120 counties, 114 are eligible to apply for EDA funds.

### **Kentucky Association of Counties (KACo) Leasing Trust**

The KACo Leasing Trust (CoLT) provides flexible funding for which all county governments and special districts in Kentucky are eligible to apply. Capital improvement projects of every kind are eligible (e.g., wastewater and water system upgrades and extensions, public building construction or renovation, vehicle and equipment purchases). Funds may be made available to special districts in the form of a direct loan or lease, payable over a term ranging from 3 to 30 years. Under the lease arrangement, CoLT maintains ownership of the capital property financed until all lease payments are made. No debt service reserves are required.

The minimum lease amount for a county is \$25,000. For a special district, the minimum is \$250,000. Applications by counties for \$1 million or less can be reviewed and approved by CoLT representatives in Frankfort. Applications by special districts and all county requests for funds in excess of \$1 million must, after review by CoLT in Frankfort, be forwarded to the authorizing bank in New York for final review and approval.

### **Kentucky League of Cities (KLC) Bond Pool**

The KLC Bond Pool financing was initiated as a result of the Tax Reform Act of 1988 to provide Kentucky municipalities with an option for financing capital projects. Like the KACo Leasing Trust, the KLC offers two options--a fixed-rate program and a variable-rate program. The fixed-rate pool lease can make capital available to any governmental agency for up to 27 years. No debt service reserve is required by the KLC in its variable-rate pool lease, but regulations on the fixed-rate financing call for a 10-percent debt service reserve. The Kentucky League of Cities retains a leasehold right to the physical facilities constructed with the KLC monies until the lease is fully retired.

### **Local Government Revenue Bonds**

Once the most-used source of long-term credit financing for units of local government, the revenue bond issue is less common today. Users are generally units of local government with a long and satisfactory credit history. In Kentucky, this usually includes middle-sized and larger cities, special purpose districts, counties, etc. A borrower retains a fiscal agent who, working with a bond counselor, a local counselor, and the borrower's engineer, develops a bond prospectus stating the intended use of the bond proceeds and the past and projected financial condition of the borrower. Revenue bonds are then offered for sale. The bidder submitting the lowest effective bid is generally sold the bonds.

As with virtually all credit sources, the borrower is required to establish that projected net revenues, after deducting projected operating and maintenance costs, are adequate to satisfy the new and existing debt service requirements (i.e., principal, interest, and debt service reserve). The ability of the borrower to demonstrate the ability to pay off the debt is directly related to the rates charged to customers for the utility service (in this case, wastewater treatment).

## Permits and Other Operational Requirements

### Planning Requirements

The Clean Water Act, Section 201(a) requires "the development and implementation of waste treatment management plans and practices which will achieve the goals of the [Clean Water Act]." These planning requirements are spelled out in greater detail in federal regulations, where plans are directed to investigate the need for and impact of proposed wastewater facilities.<sup>13</sup> The plan must take the form of a systematic evaluation of alternatives that are feasible and environmentally sound given the area's demographic, topographic, hydrologic, and institutional characteristics and must demonstrate that the selected alternative is cost effective and implementable from legal, institutional, financial, and management standpoints. The cost-effectiveness analysis must be based on a planning period of 20 years.<sup>14</sup> The plan must solicit and incorporate formal public input as a component.

A "201 plan," as the above analysis is called, is an essential prerequisite for receiving construction funding assistance through the State Revolving Fund (SRF). This plan must not only be developed but also adopted by ordinance by a public entity in the area to be served. Furthermore, any proposed wastewater project not in compliance with an existing approved 201 plan necessitates an acceptable 201 update to demonstrate that changed conditions and cost-effectiveness considerations warrant the project.

The Commonwealth has taken steps in recent years to compel entities whose projects received federal funding to abide by the service plans outlined in their 201 plans and provide service to customers in their 201 planning areas. This predicament currently faces Daviess County, where the DOW has refused to issue permits for new package plants until the local governments revise their old 201 plan and spell out a binding timetable for extending sewers outside the city of Owensboro. Furthermore, the federal EPA has requested repayment from Owensboro due to the City's refusal to accept customers within the planning area.

Even wastewater projects that are not constructed using federal money cannot avoid facilities planning requirements. Kentucky has incorporated into its construction regulations, by reference, a set of guidelines titled *Recommended Standards for Wastewater Facilities*.<sup>15</sup> More commonly known as the "Ten States Standards," these guidelines require an engineering report to be completed for minor collection system, pump station, and interceptor projects and a comprehensive facility plan to be completed or have been completed for projects involving new, expanded, upgraded, or rehabilitated wastewater treatment facilities and major collection, interceptor sewer, and pump station projects.<sup>16</sup> Like the 201 plan, these facility plans must consider wastewater treatment alternatives and base projections over the next 20 years. The Facilities Construction Branch routes its written assessments of non-SRF projects to the State Clearinghouse, just as it does for SRF projects, for coordinated review by all state agencies. This procedure ensures that non-SRF projects undergo as comprehensive a review as SRF projects. However, the process does not require the level of public involvement mandated in a 201 plan.

Given these planning requirements, government entities are forced to consider regionalization alternatives and weigh the projected consequences of their decisions carefully. In the process of developing these plans, DOW staff have the opportunity to provide a regionalization perspective. Later on, the state will, if necessary, use its available resources to ensure that the original planning entities abide by the binding commitments they made in order to secure funding and/or construction approval. The extension of promised sewer lines according to these plans can further regionalization by providing service to areas currently dependent on on-site systems or package plants.

## **Construction Permit**

A construction permit must be obtained prior to commencing construction or modification of any sewage system. "Sewage system" means individually or collectively those constructions or devices used for collecting, pumping, treating, and disposing of liquid or water-borne sewage, industrial, or other wastes.

If construction is not commenced within the 12 months following the issuance of a permit by the DOW, a new permit or a permit extension must be obtained. When construction is completed, the applicant must submit a certification by a registered professional engineer that the facilities were constructed in accordance with the approved plans and specifications.

The construction permit contains language requiring that a package plant connect to a comprehensive sewer system when one becomes available. The facility must have a facility construction permit before a KPDES permit may be issued (see following section). The KPDES permit contains a similar connection requirement in its permit conditions.

For more information on the construction permit, refer to KRS 224.10-100 and 224.70-110, and 401 KAR 5:005.

## **Kentucky Pollutant Discharge Elimination System (KPDES) Permit**

The KPDES program requires permits for the discharge of pollutants from any point source into waters of the Commonwealth. As was described in Chapter 2 of this report, the terms of this permit specify limits on numerous pollutants that may be discharged in the facility's effluent and require the facility to submit discharge monitoring reports (DMRs) to the DOW. Permit requirements specify the necessary types, intervals, and frequency of self-monitoring and reporting. KPDES permittees must also submit to reasonable inspections and sampling.<sup>17</sup> Furthermore, the facility must give immediate notice to the DOW of any planned physical alteration or additions to the permitted facility or any other change that may significantly alter the nature or increase the quantity of pollutants to be treated and discharged.<sup>18</sup>

Once issued, the KPDES permit is valid for up to five years. However, the DOW may modify, revoke and reissue, or terminate a KPDES permit for cause. The issuance of a KPDES permit does not convey any property rights or any exclusive privilege to the permittee.<sup>19</sup>

As a permit condition, the KPDES permit applicant must agree to eliminate the facility's discharge and connect to a comprehensive sewer system when one becomes available and can adequately treat the waste. A sample KPDES permit has been included in this report as Appendix C.

If the DOW's KPDES and Field Operations branches determine that a comprehensive system has become "available" to a package plant but no effort has been made to connect as required in the terms of the KPDES permit, action is taken to secure compliance. An important product of the enforcement action is a compliance schedule developed by the violator and DOW, specifying a time frame for connection to the larger facility. If a connection is not made and the case is not resolved, the Cabinet's Department of Law may be asked to take more formal legal action against the facility.

For more information on the KPDES permit, refer to KRS 224.10-100, KRS 224.16-050, KRS 224.70-110 and 70-120, 401 KAR 5:050 to 5:080, and Appendix C of this report.

## **Approval of a Sewer Line Extension**

Approval of a sewer line extension is required prior to construction of sewer lines<sup>20</sup> or connection to a treatment works, whether publicly or privately owned. The DOW is responsible for reviewing sewer line plans and issuing the approval.

For sewer extensions from POTWs and private plants, applications filed with the DOW must be accompanied by a letter from the city, sanitation district, or treatment plant owner granting permission for the sewer connection to be made and stating which parties are to be responsible for ownership and maintenance of the facilities.

If construction is not commenced within 12 months following the permit issuance, a new permit or a permit extension must be obtained. When construction is completed, the applicant must submit a certification by a professional engineer licensed to practice in Kentucky that the facilities were constructed in accordance with the approved plans and specifications.

For more information on sewer extension approvals, refer to KRS 224.10-100 and 401 KAR 5:005.

## **Floodplain Construction Permit**

A floodplain construction permit is required before placing a building in an area located adjacent to a river or stream or in the floodway of the stream. The construction of most wastewater facilities triggers this requirement, as they are usually built near the water body into which they discharge.

A permittee must provide the DOW with written notification that construction was completed in accordance with approved plans and specifications not later than 90 days after completion of construction. The applicant must also provide notice to all parties potentially affected by the construction that a permit has been requested. Once issued, the floodplain construction permit is valid for one year.

For more information on the floodplain construction permit, refer to KRS 151.250 and 151.310, and 401 KAR Chapter 4.

## **Regulation by the Public Service Commission (PSC)**

The Public Service Commission (PSC) is responsible for regulating non-municipal utilities including water and sewer districts and for-profit sewer companies.<sup>21</sup> The PSC is established and empowered under KRS Chapter 278 to:

- \* issue a certificate of convenience and necessity for construction or operation of a utility to show that there exists a need for the service;
- \* approve rate schedules and changes in rates;
- \* establish a system of accounts to be kept by utilities under PSC's jurisdiction;
- \* examine a utility's books or records, require reports, schedules, classifications or other information, and provide for periodic management and operation audits;
- \* determine the just, reasonable, safe, proper, adequate or sufficient rules, regulations, practices, equipment, appliances, etc., or methods to be observed, furnished,

constructed, etc., when the PSC finds that the rules, regulations, practices, equipment, appliances, facilities or service of any utility under its jurisdiction, or the method of manufacture, distribution, transmission, storage, or supply are unjust, unreasonable, unsafe, improper, inadequate or insufficient;

- \* approve the issuance of securities or any obligation or liability of indebtedness; and
- \* ascertain and fix the value of any property of any utility (only as the value is material to the exercise of the PSC's jurisdiction).

The PSC is authorized under 807 KAR 5:071 to regulate privately owned sewer utility systems, which include many package plants. In 807 KAR 5:071 Section 3(1)(a), the owner must provide a depreciation schedule listing separately all major components of the "package" plant. Section 5(1) of the regulation states the plant must be operated and maintained to treat the wastewater to the degree required to comply with its KPDES permit limits.

While regulated facilities generally require approval from the PSC for construction projects, KRS Chapter 278.023 suspends this requirement when the project is financed in whole or in part by the FmHA or the U.S. Department of Housing and Urban Development (HUD). In enacting KRS Chapter 278.023, the Kentucky General Assembly concluded that sufficient governmental oversight is provided by the FmHA or by the HUD or its designee through the project financing process to exempt such projects from the PSC oversight.

For wastewater utilities over which the PSC does have jurisdiction, the PSC and the DOW have developed an understanding to minimize duplication of effort and to allocate regulatory responsibilities that might otherwise fall through the cracks. The PSC normally defers technical issues involving wastewater treatment facilities to the DOW but sometimes reviews collection systems. The PSC requires the sponsoring wastewater utility to furnish evidence that the DOW has approved the construction plans and specifications. The PSC rarely inspects a wastewater project during the construction phase.

## **Technical Assistance**

While operating in an environment full of regulatory constraints, wastewater systems are not left to meet their multitude of obligations alone. The DOW supplements its enforcement activities with technical assistance wherever possible. Other independent entities provide advice and hands-on support in system operation, maintenance, and administration. Following is a brief summary of the resources available to operators of all sizes of wastewater facilities.

### **Kentucky Rural Water Association (KRWA)**

The KRWA, based in Bowling Green, specializes in providing "hands-on" technical assistance to water-related utilities. While it offers expertise in financial matters and lobbies on behalf of the interests of small- to medium-sized utilities, the main purpose of the KRWA is to provide technical assistance with the operation and maintenance of utilities. Long considered to be a valuable source of technical assistance to water utilities, the KRWA now employs one circuit rider to provide operational assistance to small wastewater utilities as well.

## **Cooperative Operation and Maintenance Training Program (COMPTTrain)**

Pursuant to the CWA Section 104(g), the DOW administers the COMPTTrain program to provide operation and maintenance training and technical assistance to small municipal wastewater treatment plants. The DOW considers four criteria when selecting Publicly Owned Treatment Works (POTWs) for participation: (1) the facility must have a design capacity of 5 million gallons per day (mgd) or less; (2) the system must have been constructed wholly or in part with federal funds; (3) the system must be out of compliance; and (4) new facilities must be experiencing operational problems or the operators of an existing facility must require training on the operation of a new treatment process after the project performance certification period has expired.

Every year, a list of POTWs meeting the above criteria is compiled by staff from the Operator Certification and Municipal Compliance Sections and the Field Operations and Facilities Construction branches of the DOW. Initial visits are made to each POTW to determine whether its performance problems can be rectified by on-site operator training. If a plant appears tremendously overloaded and/or in need of design revisions, it will not be selected for COMPTTrain assistance, as its problems cannot be solved by operator training. Several facilities are ultimately selected for COMPTTrain assistance, and an on-site review is scheduled with the cooperation of the municipal government responsible for the facility. While on-site, the COMPTTrain team conducts a three-day diagnostic review of the wastewater system, including an engineering review and process control tests on each unit. The benefits of the review are twofold: to obtain reliable data on which to base process control changes and to train the system's operators in the basics as well as how those basics apply to their specific treatment system. Upon completion of the on-site review, a report is prepared describing the treatment system, its deficiencies, and recommendations for improvement including any changes made during the on-site visit. Follow-up visits are routinely conducted by the COMPTTrain staff to monitor performance and provide additional training and assistance as necessary. Initial and follow-up reports are always provided to the operators as well as the owners of the system.

## **Kentucky Small Community Outreach Program (KY-SCOP)**

The DOW also offers assistance to wastewater systems through the Kentucky Small Community Outreach Program (KY-SCOP). The KY-SCOP focuses on assisting communities of fewer than 3,500 residents to comply with the Clean Water Act. Currently, 98 Kentucky communities face some enforcement schedule to achieve compliance; most of the 98 are financially needy as well as small. In response to this situation, the DOW has established an intrabranh committee to define the scope of an outreach program and to outline an implementation strategy for its delivery. Major activities of the SCOP are information distribution and assistance in areas such as utility financing and plant operations. The SCOP promotes the use of low-cost, easily operated facilities; awareness of financing options and financial management techniques; attention to the proper operation, maintenance and management of facilities; and the increased involvement of local officials in developing wastewater treatment solutions.

## **Area Development Districts (ADDs)**

Area Development Districts (ADDs) are regional planning agencies established by statute in KRS 147A.050. They are empowered to engage in the work of program development through administrative, research and planning efforts in their constituent counties in order to encourage the development of public and private property in the most appropriate relationships.<sup>22</sup> Kentucky's counties are grouped into 15 ADDs.

Among their many duties, the ADDs often advise municipalities and special districts seeking technical and financial support for wastewater treatment projects, e.g., selecting engineering services or

applying for federal grant/loan funding. Most ADDs also provide management assistance (e.g., budgeting, personnel policies) to wastewater utilities. Some ADDs, either directly or indirectly, even provide wastewater facilities with assistance in day-to-day utility operation and maintenance.

For more information on specific ADD wastewater projects related to regionalization, refer to Chapter 6.

### **National Small Flows Clearinghouse**

The National Small Flows Clearinghouse is an organization sponsored by the U.S. Environmental Protection Agency (U.S.EPA) and located at West Virginia University at Morgantown. The NSFC disseminates information on all aspects of small wastewater systems and specializes in information useful in developing affordable small-scale wastewater solutions. A free quarterly newsletter showcases success stories and innovative projects, discusses changing regulations, and offers wastewater utility policymakers information useful in analyzing construction alternatives and for handling operation and maintenance duties more efficiently.

### **Conclusion**

The above mechanisms can be used to further the objective of regionalization or to improve the operation of wastewater facilities that cannot feasibly be eliminated. Some efforts employing one or more of these mechanisms have already achieved successes. The next chapter will describe some of the regionalization activities undertaken by the DOW, citing specific examples of the successful use of several of these mechanisms.

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### **CHAPTER NOTES**

<sup>1</sup> A portion of the material used to compile this chapter has been adapted from the *Kentucky Rural Wastewater Assistance Manual for Policymakers*, prepared by the Bluegrass Area Development District, the Kentucky Rural Water Association, and the Kentucky Division of Water, 1993. For copies of this document, contact the Division of Water.

<sup>2</sup> Refer to KRS Chapter 96; specifically, KRS 96.350 authorizes cities of the second through sixth classes to acquire a sewerage system in conjunction with a waterworks and to join the two into one project for the purpose of original financing.

<sup>3</sup> KRS 96.351 authorizes third-class cities to establish either a waterworks or a waterworks and sewerage commission.

<sup>4</sup> Ibid.

<sup>5</sup> KRS 220.040 Section 1.

<sup>6</sup> KRS 220.135 Section 1.

<sup>7</sup> KRS 220.080 Section 1.

<sup>8</sup> KRS 220.140. For four or more counties, the procedures are more complex, and more board members are added.

<sup>9</sup> KRS 220.220 and 220.240.

<sup>10</sup> KRS 67.825 (from Enact. Acts 1990, ch. 401, Section 1, effective July 13, 1990).

<sup>11</sup> According to KRS 278.010(3)(f), "Utility" means any person except a city, who owns, controls, or operates or manages any facility used or to be used for or in connection with...the treatment of sewage for the public, for compensation, if the facility is a subdivision treatment facility plant, located in a county containing a city of the first class or a sewage treatment facility located in any other county, and is not subject to regulation by a metropolitan sewer district...."

<sup>12</sup> KRS 76.010-76.230.

<sup>13</sup> A wastewater facility operated by a fiscal court is subject to regulation by the Public Service Commission (PSC).

<sup>14</sup> 40 CFR Chapter 1, Section 35.2030 (7-1-91 Edition).

<sup>15</sup> Id. at (b)(3).

<sup>16</sup> *Recommended Standards for Wastewater Facilities*, developed by the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers. 1990 Edition. The board is composed of representatives from the ten states of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, and Wisconsin and the Canadian province of Ontario.

<sup>17</sup> The determination of classification as a major or minor project is made by the regulatory agency, based on a review of recommended classification by the owner. Ibid, p. 10-2.

<sup>18</sup> 401 KAR 5:065 Section 9.

<sup>19</sup> 401 KAR 5:065 Section 12 (a)(2). Notification is also required when an alteration may meet one of the criteria for determining whether a facility is a new source under 401 KAR 5:080, Section 5; see 401 KAR 5:065 Section 12 (a)(1).

<sup>20</sup> 401 KAR 5:065 Section 6.

<sup>21</sup> "Sewer line" means those devices used for collecting, pumping, and disposing of sewage, but not those devices used for tap-ons by individual discharges. 401 KAR 5:005, Section 13.

<sup>22</sup> Exempted from PSC oversight are systems belonging to municipalities, metropolitan sewer districts, and homeowners' associations that are not judged to serve the public at large. Sanitation districts were also excluded from PSC oversight in 1987, following two cases in the Franklin Circuit Court in which sanitation districts successfully challenged PSC's authority to review bond issuances and construction, financing, and rate proposals.

<sup>23</sup> KRS 147A.080 and KRS 147A.090.